

Hazardous Waste Cleanup Efforts Nationwide

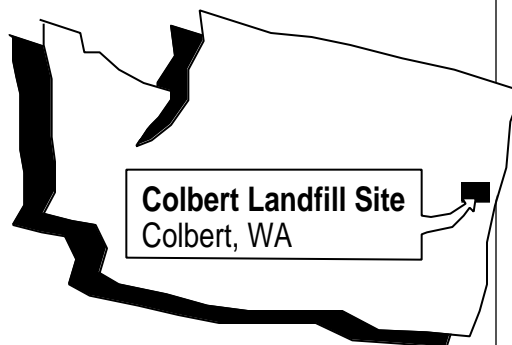
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A Site Snapshot

The 40-acre landfill is two miles north of the City of Colbert, Washington. About 1,500 people live within three miles of the site boundaries.

Spokane County owned and operated the landfill for municipal and commercial garbage from 1968 until 1986. In the early '70s, a variety of contaminated liquid organic solvent wastes, primarily volatile organic compounds (VOCs), trichloroethane (TCA), and methylene chloride, were dumped in unlined, open disposal trenches. These chemicals were used as cleaning solvents in numerous industrial processes. Over the years, seasonal precipitation filtered through the wastes, leaching toxic chemicals into the aquifers.

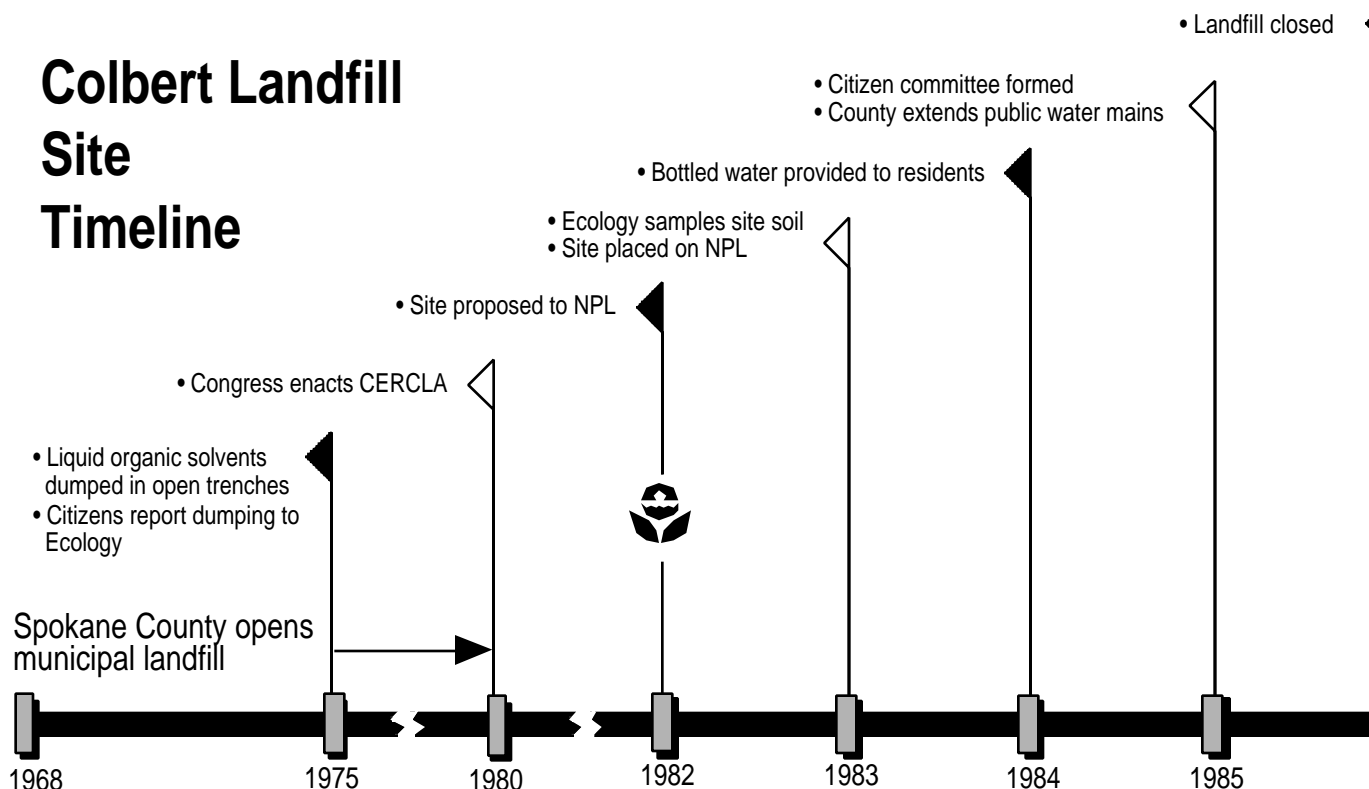
Ground water samples from some residential wells contained concentrations of TCA at unsafe levels. VOCs can cause central nervous system disorders and increase the risk of cancer, but no one has reported health problems related to the site. The Little Spokane River flows a half-mile away, but studies have not found any environmental degradation in the river ecosystem.



EPA Helps Lo

When local residents complained to the Washington Department of Ecology (Ecology) about discharges of industrial waste into open disposal trenches, Congress had just enacted the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). This law authorized the Superfund program to address abandoned or uncontrolled hazardous waste sites throughout the nation. EPA asked the states to nominate sites for a National Priorities List (NPL), and Ecology proposed Colbert Landfill in 1982. When early ground water samples revealed TCA contamination, the Spokane County Health District

Colbert Landfill Site Timeline



Officials Address Landfill Contamination

warned residents to obtain bottled water.

Shortly thereafter, EPA began a search to identify waste contributors and notify them of their potential liability. In addition to the county, other parties included Keytronic, Inc., the Fairchild Air Force Base, and Alumax, Inc.

From the fall of 1983 through-out 1984, Ecology conducted extensive field investigations and analyzed various cleanup methods. In the fall of 1985, area residents formed the Colbert Landfill Cleanup Action Committee (CLCAC) to collect and distribute information about the actions planned for the site. CLCAC presented several requests to county officials, including extending municipal water hook-ups to

affected homes and long-term monitoring of private wells. Spokane County and Keytronic, Inc. provided bottled water to those residents whose wells showed contamination and in 1985, paid to have the public water supply extended to the homes.

Ecology also found extensive soil contamination at the site with the potential for toxic runoff an additional concern. Workers laid two feet of clean soil over the entire landfill when closing it in 1986. EPA then proposed a cleanup plan to the community to address the site contamination.

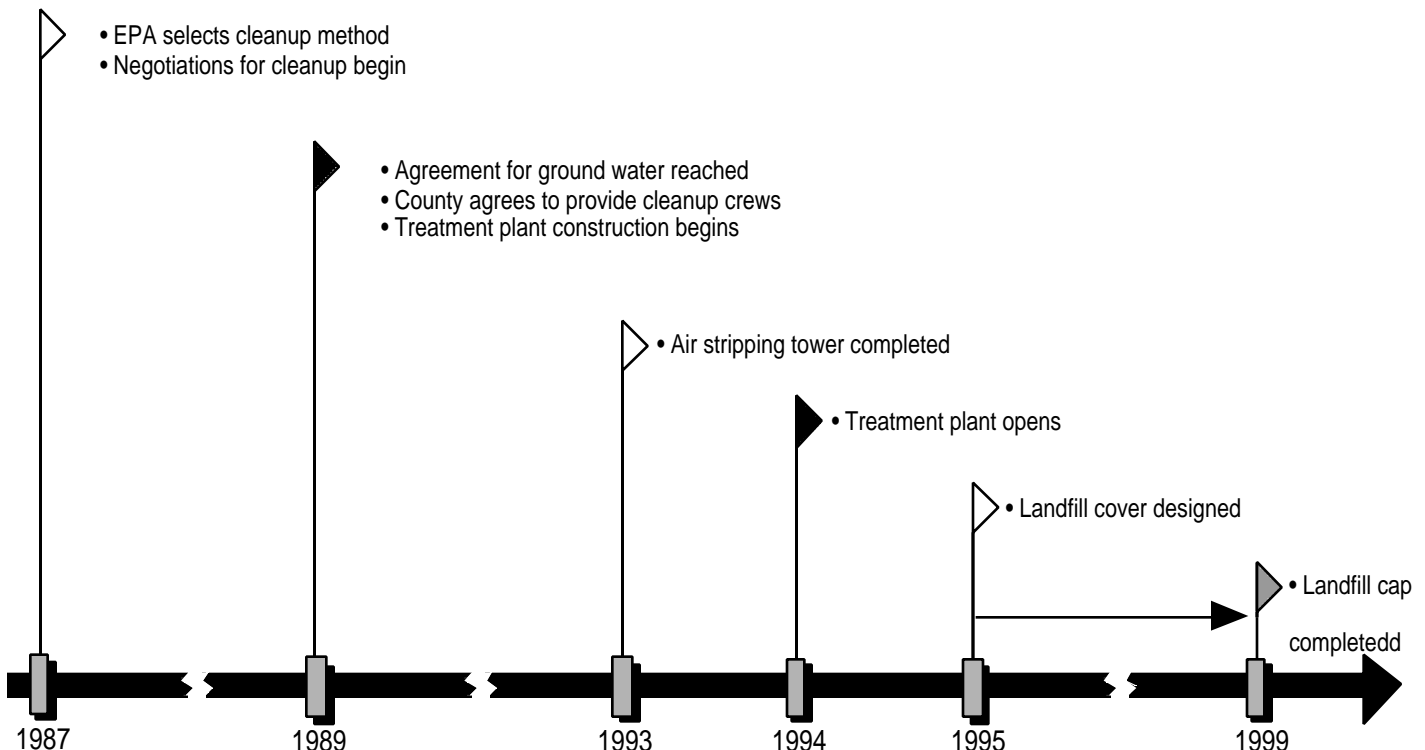
Phase 1: Ground Water Treatment

Following town meetings and a period of public com-

ment, EPA selected a cleanup plan for the site in September, 1987. Subsequently, EPA and Ecology began negotiations with Spokane County to conduct the remedy, including ground water monitoring and operation and maintenance. Keytronic, Inc. provided \$4.2 million and Fairchild Air Force Base committed \$1.45 million. EPA and Ecology agreed to contribute \$2.2 million for the effort but planned to recover costs at a later date from non-settling parties. A settlement with Alumax, Inc. added another \$750,000 in January, 1993. The combined \$7.85 million was used to design and construct a state-of-the-art ground water treatment system.

Four wells were subsequently drilled in the shallow upper

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aquifer and six wells in the deep, lower aquifer. Crews constructed a network of approximately 3.4 miles of underground piping to convey contaminated ground water to the treatment plant. Efforts continued in 1992 to construct an air stripping tower to remove, or "strip", VOCs from ground water by forcing an airstream through the water, causing the compounds to evaporate and biodegrade. Tests of the air stripping tower began shortly thereafter and construction of the plant was completed in December, 1994.

As part of the agreement with EPA and Ecology, 24 monitoring wells were located down- and cross-gradient from the extraction wells. Samples are analyzed frequently to confirm the interception of the aquifer plumes. Other privately-owned drinking water wells continue monitoring as well.

Phase 2: Permanent Landfill Cover

Efforts are under way to engineer a multi-layer cap with low permeability that will meet state standards. The design will include surface contouring and mounding because the area is completely flat; rainfall must be diverted from the surface of the

cap. Methane gas, a by-product of decomposing garbage that will build once the cap is installed, will be collected using an underground venting system and flared at the surface. County and state programs will fund the landfill cap construction, which is scheduled for completion by 1999.

Success at Colbert Landfill

Cooperation and efficiency were central to the cleanup of this hazardous waste landfill. EPA and state officials worked together with waste contributors to design and construct a \$7.85 million ground water extraction and treatment facility. Extraction and air stripping continue by the county with state officials following a strict compliance schedule. The landfill cover is in the design stage and slated for construction starting in 1997.

EPA reaffirmed the commitment to listening and learning from real people who live near Superfund sites. Citizen efforts led to extension of municipal water lines to affected homes and an ongoing monitoring program. Ground water is one of our most precious natural resources, too easily taken for granted until fouled by contaminants. For the citizens of Colbert, private resources and governmental assistance will ensure that the next generation inherits a usable water supply.



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